

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of claims:

Claims 1-21 (Cancelled)

22. (Currently amended) A method for operating a magnetic logic device connected to a control circuit, the logic device comprising one single magnetic element that comprises two magnetic setting elements, each with two magnetically differentiable states which are set with an operator control signal SET for execution of at least one operator function F; wherein the control circuit has a current source and a switching device via which the two magnetic setting elements can receive the operator control signal SET; wherein the at least one output variable $O = F(IA, IB)$ is formed by at least one logic operation from input variables IA, IB with ~~an~~the operator function F of the magnetic logic device, comprising the steps of:
- selecting an operator control signal SET from a group of control signals with which various non-volatile starting states can be set in a controlled manner, each signal being characteristic of a different logic function,
 - setting the starting state of the magnetic logic device for executing the operator function F with the selected operator control signal SET, ~~wherein the magnetic logic device includes one signal magnetic element with two magnetic setting elements which are set with the operator control signal SET,~~ and subsequently
 - executing the operation with the magnetic logic device.
23. (Previously presented) The method according to claim 22, in which starting states can be set with the control signals, each state being characteristic of a logic function from the group of logic AND, OR, NAND and NOR functions.

24. (Previously presented) The method according to claim 22, wherein starting states can be set with the control signals, each state being characteristic of a logic function from the group of logic AND and OR functions or logic NAND and NOR functions.
25. (Previously presented) The method according to claim 22, wherein the control signals are control current signals under the influence of which magnetic fields are generated or they include switching signals under the influence of which remagnetization occurs, wherein the respective logic function is set in the logic device by the magnetic fields or the remagnetization.
26. (Currently amended) The method according to claim 25, wherein the control current signals are sent via input lines to the input of the input variables I_A, I_B into the logic device.
27. (Previously presented) The method according to claim 25, wherein the control current signals have constant current values.
28. (Previously presented) The method according to claim 25, wherein the control current signals include switched-mode currents.
29. (Previously presented) The method according to claim 22, wherein the logic device receives input current signals for input of the logic input variables I_A, I_B .
30. (Currently amended) The method according to claim ~~29~~ 29, wherein the control signals are control current signals and the input current signals and the control current signals have the same values.
31. (Cancelled)
32. (Currently amended) The method according to claim 31, wherein the magnetic element has two magnetic setting elements, whereby the ~~coercitive~~ coercive field strengths and

the current values of the input current signals are coordinated so that both setting elements can be set by the operator control signal.

33. (Currently amended) The method according to claim 31, wherein the magnetic element has two magnetic setting elements, whereby the ~~eereitive~~-coercive field strength of one of the setting elements is selected to be so high that it cannot be changed with the input current signals.
34. (Previously presented) The method for operating a magnetic logic circuit, comprising a plurality of logic devices with which a plurality of logic operations may be executed either simultaneously or in succession according to a method as characterized in claim 22.
35. (Previously presented) The method according to claim 34, wherein each logic device executes the same or different logic operations in succession.
36. (Currently amended) A logic device having at least two inputs and at least one output, whereby the logic device is provided with at least one logic operation for execution, wherein at least one output variable $O = F(I_A, I_B)$ is formed from input variables I_A, I_B with an operator function F , wherein:
 - the logic device is connected to a control circuit, which is equipped for providing an operator control signal that is selected from a group of control signals with which various non-volatile starting states of the logic device that are characteristic of various logic functions can be set, and for setting the logic device at a starting state corresponding to the operator control signal, and
 - the logic device comprises one single magnetic element ~~having that comprises two magnetic setting elements, each with two magnetically differentiable states~~ which are set with the operator control signal SET for execution of the operator function F ;
wherein the control circuit has a current source and a switching device via which the two magnetic setting elements can receive the operator control signal.

37. (Cancelled)
38. (Previously presented) The logic device according to claim 36, wherein the control circuit has an operator function selector with which the operator control signal is selectable.
39. (Previously presented) The logic device according to claim 36, wherein the magnetic element includes a magnetoresistive element.
40. (Previously presented) A logic circuit having a plurality of logic devices according to Claim 36.
41. (Previously presented) The logic circuit according to claim 40, wherein each logic device is connected to a separate control circuit.
42. (Previously presented) The logic circuit according to claim 40, wherein the logic devices are connected in groups or collectively to a common control circuit.